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(54) Semiconductor antifuse structure and method

(57) A method for forming an array of antifuse structures on a semiconductor substrate which previously has had CMOS devices fabricated thereupon up to first metallization. A fuse structure is formed as a sandwich by successively depositing a bottom layer of TiW, a layer of amorphous silicon, and a top layer of TiW. The amorphous silicon is formed in an antifuse via formed in a dielectric layer covering the bottom layer of TiW. First metallization is deposited and patterned over the top layer of TiW. An intermetal dielectric layer is formed over the fuse array and second metal conductors are formed thereupon. An alternative embodiment includes forming an oxide sidewall spacer around the periphery of an antifuse structure. Connection resistance to the bottom layer of TiW is lowered by using a number of vias between the second-metal conductors and the bottom layer of TiW in a row of an array of antifuse devices.

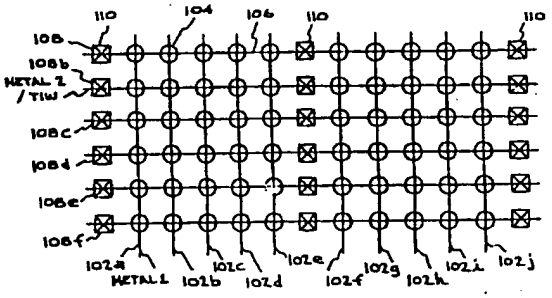

FIG. 2A

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EUROPEAN SEARCH REPORT

Application Number
EP 95 10 7360

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D,A	STOPPER H.: "A Wafer with Electrically Programmable Interconnections" IEEE INTERNATIONAL SOLID STATE CIRCUITS CONFERENCE, vol. 28, February 1985, CORAL GABLES FLORIDA, US, pages 268-269, XP002046003 * the whole document *	1,4-7	H01L23/525
A	US 4 748 490 A (HOLLINGSWORTH DEEMS R) 31 May 1988 * column 2, line 59 - column 4, line 60; figures 1-3 *	1,5-7	
A	US 4 569 121 A (LIM SHELDON C P ET AL) 11 February 1986 * column 5, line 4 - column 6, line 42; figures 8-10 *	1,4-7	
A	GB 2 066 566 A (ENERGY CONVERSION DEVICES INC) 8 July 1981 * page 4, line 20 - line 102; figures 1,2 * * page 5, line 70 - line 99; figure 5 *	1,4,6	TECHNICAL FIELDS SEARCHED (Int.Cl.6) H01L
A	WO 85 03599 A (NCR CO) 15 August 1985 * page 5, line 27 - page 7, line 36; figures 1-9 *	1,6	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	7 November 1997	Le Minh, I

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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